Recommendations for the Prevention, Detection, and Control of Influenza in Maine Long-term Care Facilities, 2006-07

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Maine Department Health and Human Services
Center for Disease Control and Prevention
(Formerly Bureau of Health)
11 State House Station
Augusta, ME 04330-0011

Disease Reporting Line
1-800-821-5821

Forward

The information contained herein is based on the Centers for Disease Control and Prevention (CDC) *Prevention and Control of Influenza: Recommendations of the Advisory Committee on Immunization Practices* (www.cdc.gov/mmwr/preview/mmwrhtml/rr55e628a1.htm), [1] *Infection Control Guidance for Prevention and Control of Influenza in Acute-care Facilities* (www.cdc.gov/flu/professionals/infectioncontrol/healthcarefacilities.htm)[2] and other state-based resources.[3,4]

Influenza can severely impact long-term care facilities: attack rates may reach 50% or more, with case hospitalization rates as high as 25% and case fatality rates as high as 10% in some populations.[5] Infection among healthcare workers during outbreaks is also common, with attack rates of 20%-35%. This report summarizes a multi-faceted approach to influenza outbreak management in long-term care facilities to enable a timely and effective response.

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Section I: Preparing for Influenza Season

Epidemics of influenza typically occur each winter, and are responsible for an average of 36,000 deaths/year nationally. While influenza causes disease in all age groups, rates of serious illness and death are highest among persons aged ≥65 years and other high-risk populations.[1] When 3 or more patients with clinically suspected influenza (ILI) on same floor or ward during a short (e.g., 48-72 hour) period, or 1 or more patients with laboratory confirmed influenza are identified, an influenza outbreak should be suspected. Once detected, specific actions can be taken to identify additional cases and limit the spread of infection. This section discusses planning steps that should be considered in preparation for influenza season.

Preparing for influenza season can minimize the risk of outbreaks, hospitalizations, and adverse outcomes associated with influenza. Establishing influenza prevention and control activities in long-term care facilities before an outbreak has occurred will make expectations and responsibilities clear among staff and administration, which will minimize the risk for errors (for example, in antiviral dosages), avoid staff overtime and shortages, and ensure that adequate supplies are rapidly available. Issues to consider well before an outbreak occurs follow.

1. Administration

Establishing good communication among staff is important to insure a coordinated and effective response. Staff policies and procedures that should be addressed include:

- Work furloughs and restrictions for ill staff
- Bed management (i.e., isolation, cohorting, closing units)
- Availability of an adequate supply of support equipment (i.e., masks, immunization supplies, antiviral medications)

Contingency plans (e.g., a list of alternative distributors) should be developed to address supply shortages. Healthcare staff should participate in creating these policies and should be informed of changes in writing and at staff meetings.

2. Immunization

Pneumococcal vaccine and annual fall influenza immunization are important prevention measures, and should be made available to all residents and staff of institutions (including volunteers and administration) as indicated by national guidelines. Methods for insuring the highest possible vaccination levels for influenza include:

- Providing reports of vaccination levels and recognizing units with high coverage – this can foster a spirit of competition between units
- Removing barriers for staff (e.g., providing vaccinations in work areas, at conferences, in lunchrooms, or in other meeting areas) and residents (e.g. standing orders)

During October and November each year, influenza vaccination should be routinely provided to all residents of long term care facilities with concurrence of the attending physician. Any resident aged 65 years or older should be evaluated for consideration of pneumococcal vaccine. Consent for vaccination should be obtained from the resident or a family member at the time of admission or at any time afterwards. All residents

should be vaccinated for influenza at the same time. Persons admitted after the completion of the facility's annual influenza vaccination program should be vaccinated at admission. A list of residents and staff and their vaccination status should be maintained so that in the event of an outbreak, influenza vaccinations and prophylaxis can rapidly be targeted to appropriate residents and staff.

3. Interventions

Some of the interventions for influenza outbreaks require the coordination of resources and personnel and may take time to implement. Methods that can be developed prior to an event include:

- Developing disease monitoring protocols and tools,
- Developing influenza antiviral plans, including treatment and prophylaxis, and
- Providing staff training, including sessions on recognizing influenza, indications for treatment, and hand hygiene and respiratory etiquette.

Since influenza can spread so rapidly, it is important that these interventions are available as soon as they are needed.

Educational materials on respiratory hygiene and influenza infection control are available at the Maine CDC website, www.mainepublichealth.gov under "Influenza." The materials are useful for both residents and visitors to a long-term care facility. Additional resources are also available at CDC Influenza website (www.cdc.gov/flu).

Section II: Early Detection of Influenza

Despite its clear benefits, vaccination does not offer complete protection against influenza viruses, and outbreaks can still occur. Antigenic drifts and shifts, and imperfect matching between the vaccine and circulating strains may limit vaccine effectiveness. The waning immunity and decreased efficiency in mounting antigenic responses that comes with advanced age and underlying medical conditions may further decrease overall vaccine effectiveness for some populations.

Prompt recognition of influenza and the initiation of infection control measures can help prevent influenza from spreading to patients and healthcare personnel. Reliable, timely detection depends upon prompt recognition of clinical signs and symptoms, supported by laboratory confirmation of infection. A low threshold should be adopted for suspecting influenza-like illness (ILI), defined as fever of ≥ 100º F AND cough and/or sore throat in the absence of a known cause.

Suspect an outbreak of influenza if any of the following are occurring:

- ≥3 patients with ILI identified on same floor or ward during a short (e.g., 48-72 hour) period
- ≥3 staff who work on the same floor or ward who report acute respiratory illness
- A sudden increase in staff absenteeism

If one of these situations occurs, be prepared to look for additional cases and perform rapid influenza testing of patients or staff with recent onset of symptoms. If one or more

positive tests occur, influenza transmission is occurring, and measures need to be taken to prevent or minimize an outbreak.

Maine CDC must be notified within 24 hours of any suspected outbreaks of influenza. Epidemiologists can assist in refining interventions, notifying other facilities, and facilitating specimen collection for viral culture. Report outbreaks by calling 1-800-821-5821. Epidemiologists are available 7 days a week to receive reports of outbreaks and to provide consultation.

Section III: Outbreak Management

Once an outbreak has been detected, the steps taken to prepare for such an event in Section I will guide infection control measures. The following guidelines can be used to direct a facility's response.

- **Suspected Outbreak**
  1. Each nursing unit should immediately report any resident(s) or staff with ILI to the facility administrator or director of nursing. A case log may be kept to track the location and health status of residents with ILI (Appendix 2).
  2. Notify the facility medical director that an outbreak of influenza is suspected.
  3. Contact the Maine CDC at 1-800-821-5821 by phone or 207-287-8186 by fax (using Outbreak report form in Appendix 3) to report a suspected outbreak of influenza (see Early Detection section).
  4. Cohort patients with suspected or lab-confirmed influenza on a designated ward and place on droplet precautions.
  5. Restrict movement of staff between wards.
  6. Limit visitors.
  7. Limit new admissions.
  8. Restrict ill staff from patient care.
  9. Treat influenza cases with antiviral medications, unless contraindicated (see Antiviral section).
  10. Offer prophylaxis to exposed non-ill patients and unvaccinated staff (see Antiviral section).

- **Laboratory Confirmation**

Influenza infection can be confirmed through viral culture, PCR, DFA, and rapid diagnostic testing of respiratory specimens, paired acute and convalescent sera (with four-fold rise in influenza HI), and IHC staining of respiratory tract specimens.

1. Consult with the Maine CDC to submit respiratory specimens for PCR and viral culture to identify influenza as the source of the outbreak.
2. If influenza is confirmed in $\geq$1 residents, institute confirmed outbreak control measures.

- **Confirmed Outbreak Control Measures**

1. Cohort infected residents:

   a. Keep residents with suspected or confirmed influenza in a private room or in a room with other residents with the same symptoms.
   b. Limit staff from "floating" to non-infected wards, if possible.
2. In addition to Standard Precautions, place symptomatic residents on Droplet Precautions.
3. Cancel or postpone group activities.
4. Limit new admissions until the incidence of new cases has reached zero. If new admissions are necessary, admit residents to a non-infected ward or to a ward that has had no new cases for at least 2 days.
5. Restrict visitors and volunteers.
6. Re-offer influenza vaccination to unvaccinated staff and residents.
7. Initiate chemoprophylaxis as early as possible to reduce the spread of the virus. Administer chemoprophylaxis to all residents, regardless of vaccination status, and continue for a minimum of 2 weeks, or 1 week after the end of the outbreak (date the last case was identified). [1]

➢ Use Antiviral Medications

The use of antiviral medications is known to reduce the morbidity of influenza in confirmed influenza patients, as well as provide protection against influenza infection to exposed non-ill patients and unvaccinated individuals. When outbreaks of influenza occur in a long-term care facility, and antiviral prophylaxis of high-risk persons and treatment of cases in undertaken, drug administration should begin as early in the outbreak as possible to reduce transmission and to limit complications of infection.

When outbreaks occur in facilities, chemoprophylaxis should be administered to all residents, regardless of influenza vaccination status. Chemoprophylaxis should continue for a minimum of 2 weeks. If surveillance indicates that new cases continue to occur, chemoprophylaxis should be continued until approximately 1 week after the end of the outbreak, or 1 week from the date when the last case of influenza among either residents or staff, was identified. The dosage for each resident should be determined individually (see Appendix 1). Chemoprophylaxis also can be offered to unvaccinated staff who provide care to persons at high risk. Prophylaxis should be considered for all employees, regardless of their vaccination status, if the outbreak is caused by a strain of influenza that is not well matched by the vaccine.[1]

References and Other Sources of Information

1. Centers for Disease Control and Prevention. Prevention and Control of Influenza: Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 2006;55 (RR-10);1-42. http://www.cdc.gov/mmwr/preview/mmwrhtml/rr55e628a1.htm
2. Centers for Disease Control and Prevention. Infection Control Guidance for the Prevention and Control of Influenza in Acute-care Facilities. CDC 2005. http://www.cdc.gov/flu/professionals/infectioncontrol/healthcarefacilities.htm
3. California Department of Health Services. Recommendations for the Prevention, Detection, and Control of Influenza in California Long-term Care Facilities, 2004-

2005. California Department of Health Services 2004. http://www.dhs.ca.gov/ps/dcdc/disb/disbindex.htm
4. Stroube RB, Jenkins SR, Novak C, O'Dell VL. Virginia Epidemiology Bulletin, October 2004. www.vdh.virginia.gov
5. Centers for Disease Control and Prevention. Influenza Web Site Home Page. http://www.cdc.gov/flu/
6. Maine Department of Health and Human Services, CDC Influenza Web Site Home Page. http://www.maine.gov/dhhs/boh/Influenza_2005-2006.htm

Appendix 1: Recommended daily dosage of influenza antiviral medications for treatment and chemoprophylaxis – Unites States[1]

This table is taken directly from Centers for Disease Control and Prevention's Prevention and Control of Influenza: Recommendations of the Advisory Committee on Immunization Practices (ACIP) (*MMWR* 2006;55 (RR-10);1-42).

	Age group (yrs)				
Antiviral agent	**1-6**	**7-9**	**10-12**	**13-64**	**≥65**
Zanamivir*					
Treatment, influenza A and B	N/A†	10 mg (two inhalations) twice daily	10 mg (two inhalations) twice daily	10 mg (two inhalations) twice daily	10 mg (two inhalations) twice daily
Chemoprophylaxis, influenza A and B	**Ages 1-4** N/A†	**Ages 5-9** 10 mg (two inhalations) once daily	10 mg (two inhalations) once daily	10 mg (two inhalations) once daily	10 mg (two inhalations) once daily
Oseltamivir					
Treatment,§ influenza A and B	Doses varies by child's weight¶	Doses varies by child's weight¶	Doses varies by child's weight¶	75 mg twice daily	75 mg twice daily
Chemoprophylaxis, influenza A and B	Doses varies by child's weight**	Doses varies by child's weight**	Doses varies by child's weight**	75 mg once daily	75 mg once daily

NOTE: Zanamivir is manuafactured by GlaxoSmithKline (Relenza® -- inhaled powder). Oseltamivir is manufactured by Roche Pharmaceuticals (Tamiflu® -- tablet). This information is based on data published by the Food and Drug Administration (FDA), which is available at www.fda.gov.

* Zanamivir is administered through oral inhalation by using a plastic deice included in the medication package. Patietns will benefit from instruction and demonstration of the correct use of the device. Zanamivir is not recommended for those persons with underlying airway disease.

† Not applicable.

§ A reduction in the dose of oseltamivir is recommended for persons with creatinine clearance <30 mL/min.

¶ The treatment dosing recommendations of oseltamivir for children weighing ≤15 kg is 30 mg twice a day; for children weighing >15-23 kg, the dose is 45 mg twice a day; for children weighing >23-40 kg, the dose is 60 mg twice a day; and for children >40 kg, the dose is 75 mg twice a day.

** The chemoprophylaxis dosing recommendations of oseltamivir for children weighing ≤15 kg is 30 mg once a day; for children weighing >15-23 kg, the dose is 45 mg once a day; for children weighing >23-40 kg, the dose is 60 mg once a day; and for children >40 kg, the dose is 75 mg once a day.

On the basis of antiviral testing results conducted at CDC and in Canada indicating high levels of resistance, ACIP recommends that either amantadine nor rimantadine be used for the treatment or chemoprophylaxis of influenza A until the United States until susceptibility to these antiviral medications has been re-established among circulating influenza A viruses.

Appendix 2: Sample Case Log of Residents with Acute Respiratory Illness and/or Pneumonia

Patient Identification			Patient Location			Vaccination Status	Illness Description				Laboratory Confirmation		Illness Complications		
Name	Age	Sex	Building	Unit	Room #, Bed designation	Influenza (Y/N)	Date onset illness	Highest Temperature	Cough (Y/N)	Sore Throat (Y/N)	Rapid antigen (+/-/Not Done)	Viral culture	Pneumonia (Y/N)	Hospitalized (Y/N)	Died (Y/N, if yes, date)

Appendix 3: Maine CDC Influenza Outbreak Report Form

Influenza-Like Illness*
Initial Outbreak Report
(Rev. 9/05)

* Influenza-like Illness defined as having a fever of ≥100º F or 37.8º C AND a cough and/or sore throat (in the absence of a known cause).

Outbreak definition:

- Long-term care: ≥3 patients with ILI identified on same floor or ward during a short (e.g., 48-72 hour) period OR ≥1 patients with lab-confirmed influenza
- Acute care: ≥1 patients with ILI or lab-confirmed influenza with symptom onset ≥48 hours post-admission (i.e., nosocomial)
- Schools: ≥15% absentee rate among student population due to ILI or lab-confirmed influenza

Contact Information

Maine CDC use only	
Date of report:	Report received by:
Epidemiologist:	Region:
Name of Facility:	Type of facility: ❑ LTC ❑ Acute ❑ School
Contact person and title:	Address:
Phone number:	Fax number:

Outbreak Description

Residents/Patients/Students

- Total population (#): _____
- Total population with ILI (#): _____

Laboratory confirmation

- Rapid Antigen Tested Positive?
  - ❑ YES → If YES, indicate type: A A/B B
  - ❑ NO
- Culture confirmed? (Submit ≥ 1 specimen for culture at HETL)
  - ❑ YES → If YES, indicate type and subtype if available: A _____ B _____
  - ❑ NO